UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 4260

CITY ROUTE 154

OVER THE

NORTH CHANNEL OF THE MISSISSIPPI

DISTRICT 6 - WINONA COUNTY, CITY OF WINONA

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 150)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No.4260, Piers 1 through 12, were found to be in fair to poor condition. The submerged concrete was typically in fair condition with moderate scaling near the waterline and random hairline cracks; however, there were also several areas of heavy scaling and large areas of section loss observed. All of the piers exhibited excessive undermining, which has greatly reduced the load carrying capacity of the bridge, as well as compromised the structure's stability. There was substantial undermining of the piers noted during the previous inspection in 1992, and the channel bottom has further degraded as much as 4 feet at several of the piers since that time. The exposed timber piling has also developed significant deterioration in some instances since the previous inspection with up to 50 percent section loss observed at several of the piers. At the time of the inspection, the structure was closed to traffic, but it was understood that design has begun for the rehabilitation of the bridge.

INSPECTION FINDINGS:

(A) Piers 2 through 12 exhibited excessive undermining of the footing with the maximum vertical exposure of the piles under the footing at each pier ranging from 5 feet to 12 feet. The undermining was anywhere from 2 to 9 feet greater at the downstream end of the pier than at the upstream end.

(B) The exposed timber piles typically exhibited 5 to 10 percent section loss; however, Piers 2, 4, 5, 6, 8 and 9 had several downstream timber piles with more substantial deterioration ranging from 25 to 50 percent section loss. In addition, three of the downstream piles of Pier 10 were no longer encased in the concrete footing, four of the piles of Pier 9 were loose in their footing "pockets", and one pile at the southeast corner of Pier 4 was broken off completely 2 feet above the channel bottom.

(C) The submerged concrete of the piers was typically in fair condition with moderate scaling from the waterline to 2 feet below the waterline with typical penetrations of 1/2 inch and maximum penetrations of up to 1 inch. Random vertical and horizontal hairline cracks were also observed on the submerged concrete. In addition, Pier 2 exhibited a band of heavy scaling from 1 foot above to 2 feet below the waterline with up to 6 inches of penetration. Pier 4 exhibited a 2 foot high band of heavy scaling on the footing with up to 1 foot of penetration. The footing at Pier 5 exhibited section loss along the entire bottom edge of the west side measuring 1foot high and 1 foot deep. Pier 9 exhibited an area of section loss on the downstream west corner from 1 foot above to 2 feet below the waterline with up to 2 inches of penetration.

(D) Minor accumulations of timber debris were observed on the channel bottom at Piers 3, 8, 9, 10, and 11.

RECOMMENDATIONS:

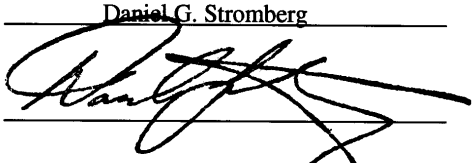
(A) The extent of undermining was excessive, and the load carrying capacity has been considerably compromised. To restore the bridge to its original integrity, appropriately designed foundation repairs that provide additional vertical support for the piers are warranted.

(B) Repair the areas of concrete section loss by removing the unsound concrete and reforming with a concrete mix designed to promote high durability and low permeability.

(C) So long as the bridge remains closed and repairs are implemented before it is re-opened, future underwater inspections should be performed at the normal maximum (NBIS) interval of 5 years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

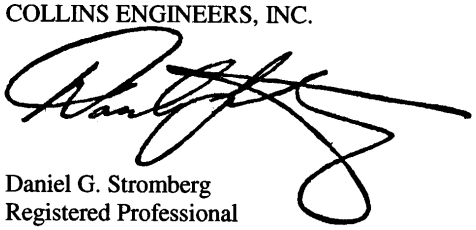
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 4260

Feature Crossed: The North Channel of the Mississippi River

Feature Carried: City Route 154

Location: District 6 - Winona County, City of Winona

Bridge Description: The superstructure consists of twenty-four spans of reinforced concrete arches or beams. The main spans across the channel are open spandrel reinforced concrete arches. The bridge is supported by reinforced concrete piers which are founded on timber piles. The channel piers are numbered 1 through 13 starting with Pier 1 on the east shore.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: October 2, 2002

Weather Conditions: Rain, "45EF

Underwater Visibility: "1 feet

Waterway Velocity: "1.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 through 12. Pier 13 was inaccessible due to the presence of pontoons and houseboats.

General Shape: Oblong rectangular shafts with rounded corners which sit on rectangular footings that are founded on timber piles.

Maximum Water Depth at Substructure Inspected: Approximately 24 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap on the upstream end of Pier 2.

Water Surface: The waterline was approximately 8 feet below the springline at the downstream end of Pier 1.
Assumed Waterline Elevation = 92.0.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

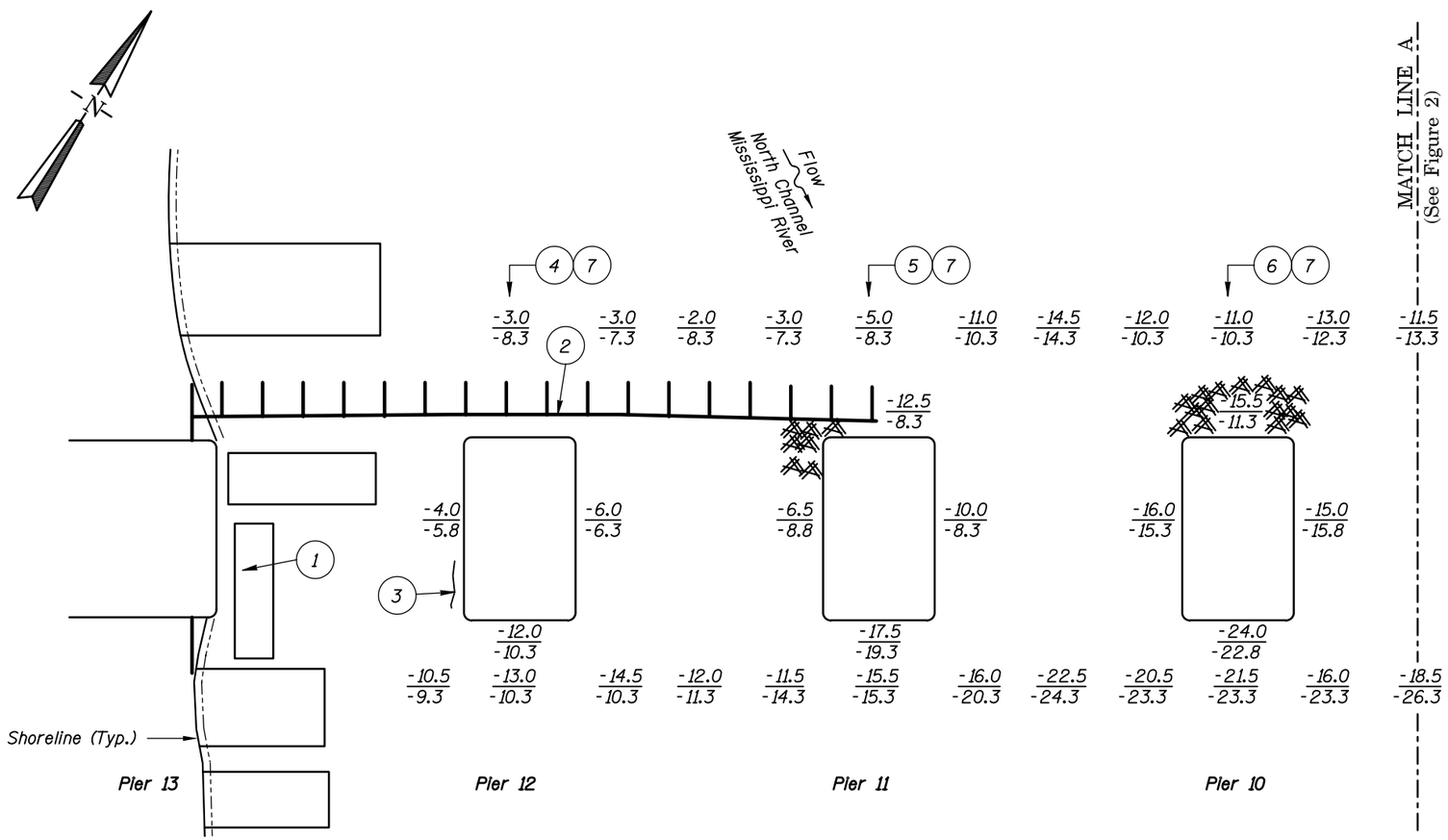
Item 60: Substructure: Code 4

Item 61: Channel and Channel Protection: Code 3

Item 92B: Underwater Inspection: Code B/10/02

Item 113: Scour Critical Bridges: Code B/02

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.
__X__ Yes _____ No



SOUNDING PLAN

INSPECTION NOTES:

1. Pier 13 was inaccessible due to the presence of pontoon boats and house boats which were blocking the area.

2. A framework of timber planks was lodged against the upstream noses of Piers 11, 12, and 13.

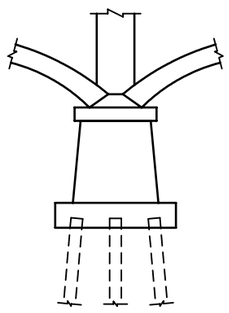
3. The original timber formwork was observed along the downstream west face of Pier 12 and was loose from 4 feet below the waterline to the channel bottom.

4. The bottom of the footing at Pier 12 was located approximately 8 feet below the waterline. Vertical undermining was limited to the downstream end with 3 feet of undermining at the west corner and up to 5 feet at the east corner.

5. The bottom of the footing at Pier 11 was located approximately 11 feet below the waterline. A minor accumulation of timber debris was observed on the channel bottom at the upstream west corner. The rest of the footing exhibited undermining with 3 feet of vertical undermining at the upstream east corner, 6 feet at the downstream west corner and a maximum of 7 feet at the downstream east corner.

6. The bottom of the footing at Pier 10 was located approximately 12 feet below the waterline. A minor accumulation of timber debris was observed on the channel bottom at the upstream end. The entire footing exhibited undermining with 3 feet of vertical undermining at the upstream east corner, 4 feet at the upstream west corner and a maximum of 12 feet at the downstream end. Three of the timber piles along the edge of the northwest corner were no longer encased in the concrete footing.

7. The submerged concrete was typically in satisfactory condition with moderate scaling from the waterline to 2 feet below the waterline with typical penetrations of 1/2 inch and maximum penetrations of up to 1 inch. Random vertical and horizontal hairline cracks were also observed on the submerged concrete. Typically, the exposed timber piles exhibited 5 to 10 percent section loss unless otherwise stated.



TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 through 12 were inspected underwater. Pier 13 was inaccessible due to the presence of pontoons and houseboats.

2. At the time of inspection on October 2, 2002, the waterline was located approximately 8.0 feet below the springline at the downstream end of Pier 1. Since design drawings were not available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 92.0.

3. Soundings indicate the water depth at the time of inspection and are measured in feet.

4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

Legend

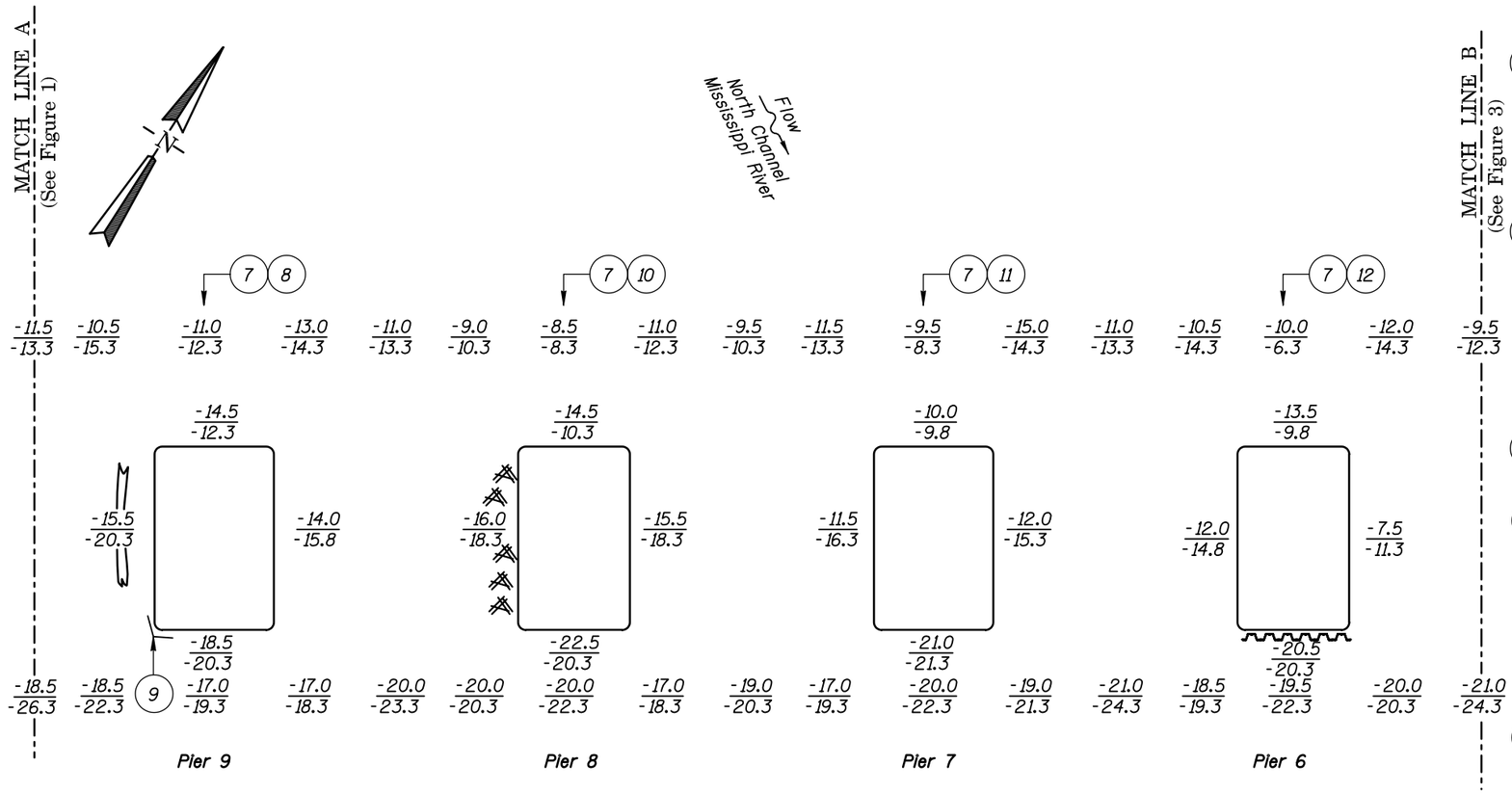
-2.0	Sounding Depth from Waterline (10/2/02)
-5.2	Sounding Depth from Waterline (11/6/92)
	Timber Debris

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 4260
OVER THE NORTH CHANNEL OF THE MISSISSIPPI RIVER
DISTRICT 6, WINONA COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120150		Figure No.: 1



SOUNDING PLAN

INSPECTION NOTES:

(7) *The submerged concrete was typically in satisfactory condition with moderate scaling from the waterline to 2 feet below the waterline with typical penetrations of 1/2 inch and maximum penetrations of up to 1 inch. Random vertical and horizontal hairline cracks were also observed on the submerged concrete. Typically, the exposed timber piles exhibited 5 to 10 percent section loss unless otherwise stated.*

(8) *The bottom of the footing at Pier 9 was located approximately 10 feet below the waterline. A tree that was 2 feet in diameter and 30 feet long was observed on the channel bottom along the west face of the pier. The entire footing exhibited undermining with 4 feet of vertical undermining at the upstream east corner, 5 feet at the upstream west corner and the downstream east corner, and a maximum of 12 feet at the downstream west corner. Four of the timber piles at the downstream end of the pier exhibited up to 50 percent section loss and were loose in the concrete footing pocket.*

(9) *Pier 9 exhibited an area of section loss on the downstream west corner from 1 foot above to 2 feet below the waterline with up to 2 inches of penetration.*

(10) *The bottom of the footing at Pier 8 was located approximately 12 feet below the waterline. A light accumulation of timber debris was observed on the channel bottom along the west face of the pier. The entire footing exhibited undermining with 2 feet of vertical undermining at the upstream east corner, 3 feet at the upstream west corner, 10 feet at the downstream east corner, and a maximum of 11 feet at the downstream west corner. Four of the timber piles at the downstream end of the pier exhibited up to 50 percent section loss.*

(11) *The bottom of the footing at Pier 7 was located approximately 11 feet below the waterline. No undermining was observed at the upstream end of the pier, however, the downstream end of the footing exhibited 9 feet of vertical undermining at the downstream east corner and 11 feet at the downstream west corner.*

(12) *The bottom of the footing at Pier 6 was located approximately 12.8 feet below the waterline. No undermining was observed at the upstream end of the pier, however, the downstream end of the footing exhibited a maximum of 8 feet of vertical undermining. Timber formwork was observed along the east face of the pier, and steel sheet piling was observed 2 feet south of the downstream end of the pier and extended from the channel bottom to the top of the footing. The downstream timber piles exhibited up to 30 percent section loss.*

Legend

-2.0 / -5.2	*Sounding Depth from Waterline (10/2/02) / (11/6/92)*
	Timber Debris

Note:

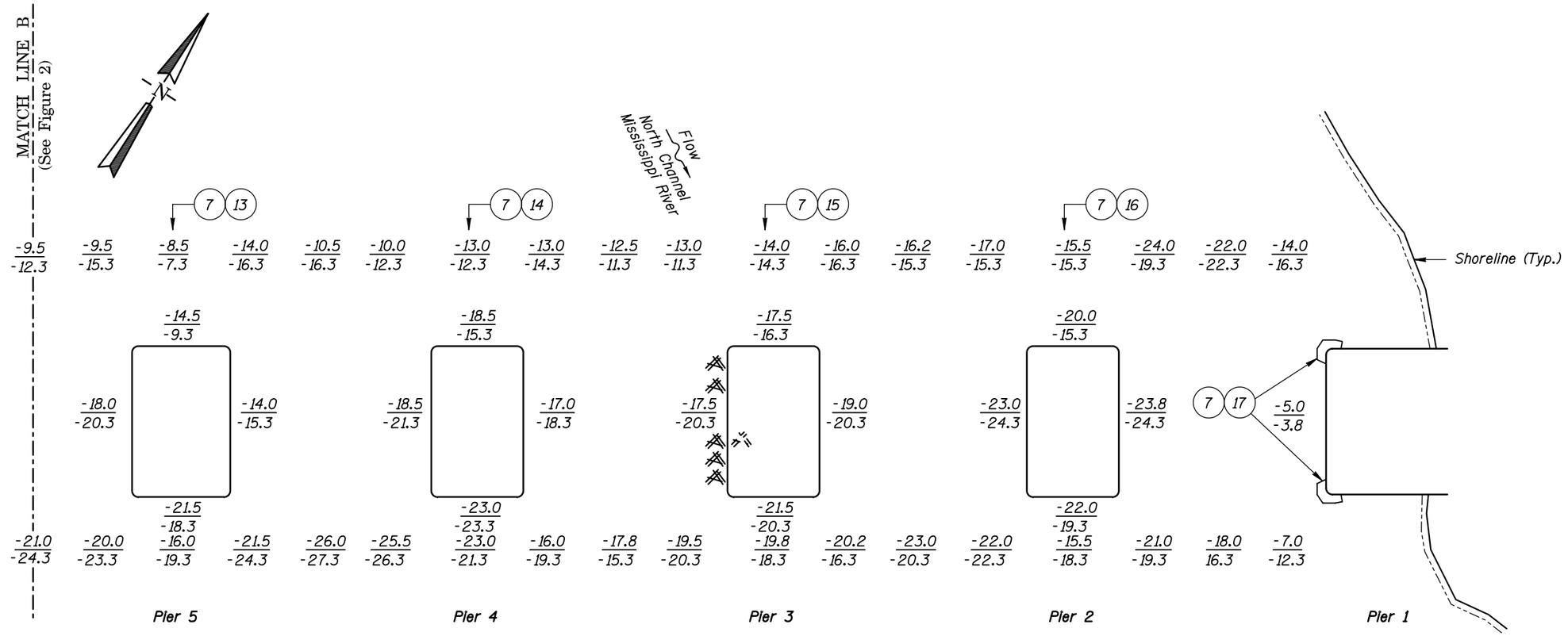
Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 4260
OVER THE NORTH CHANNEL OF THE MISSISSIPPI RIVER
DISTRICT 6, WINONA COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120150		Figure No.: 2



SOUNDING PLAN

INSPECTION NOTES:

(7) The submerged concrete was typically in satisfactory condition with moderate scaling from the waterline to 2 feet below the waterline with typical penetrations of 1/2 inch and maximum penetrations of up to 1 inch. Random vertical and horizontal hairline cracks were also observed on the submerged concrete. Typically, the exposed timber piles exhibited 5 to 10 percent section loss unless otherwise stated.

(13) The bottom of the footing at Pier 5 was located approximately 12 feet below the waterline. The entire footing exhibited undermining with 2 feet of vertical undermining at the upstream west corner, 3 feet at the upstream east corner, 9 feet at the downstream west corner, and a maximum of 10 feet at the downstream east corner. The bottom edge of the concrete footing exhibited section loss measuring 1 foot high and 1 foot deep along the entire west side of the pier. The downstream timber piles exhibited up to 25 percent section loss.

(14) The bottom of the footing at Pier 4 was located approximately 12.5 feet below the waterline. The entire footing exhibited undermining with 6 feet of vertical undermining at the upstream end, 9 feet at the downstream east corner, and a maximum of 12 feet at the downstream west corner. The downstream piles exhibited 30 to 40 percent section loss, and the southeast corner pile was broken at 2 feet above the channel bottom. The concrete footing exhibited a 2 foot high band of heaving scaling with up to 1 foot of penetration.

(15) The bottom of the footing at Pier 3 was located approximately 12.5 feet below the waterline. The entire footing exhibited undermining with 5 feet of vertical undermining at the upstream end and 9 feet at the downstream end. A minor accumulation of timber debris was observed on the channel bottom scattered throughout the timber piles along the west side of the pier. The downstream piles exhibited up to 15 percent section loss.

(16) The bottom of the footing at Pier 2 was located approximately 15 feet below the waterline. The entire footing exhibited undermining with 5 feet of vertical undermining at the upstream end and 7 feet at the downstream end. Typically, the downstream timber piles exhibited 20 percent section loss. The timber pile at the southwest corner exhibited 50 percent section loss. A band of heavy scaling was observed from 1 foot above to 2 feet below the waterline with up to 6 inches of penetration.

(17) The top of the footing at Pier 1 was exposed at the upstream and downstream corners with up to 1.5 feet of vertical face exposure.

Note:

Refer to Figure 1 for General Notes.

Legend

-2.0 / -5.2	Sounding Depth from Waterline (10/2/02) / Sounding Depth from Waterline (11/6/92)
	Timber Debris

MINNESOTA
DEPARTMENT OF TRANSPORTATION
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DISTRICT 6, WINONA COUNTY

INSPECTION AND SOUNDING PLAN

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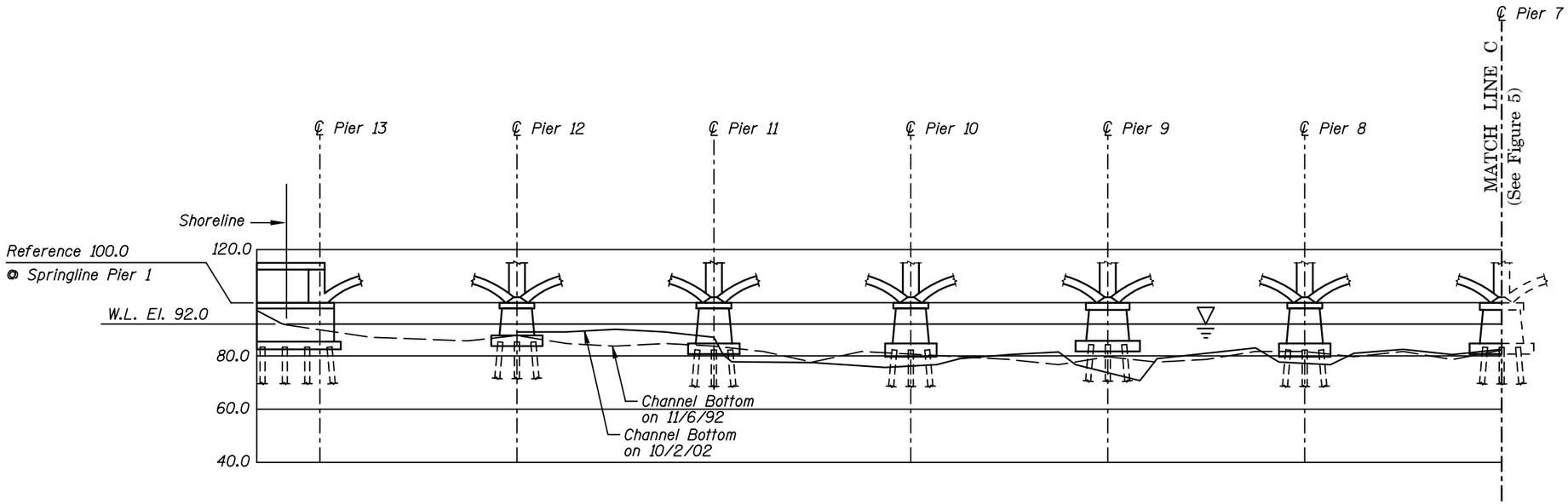
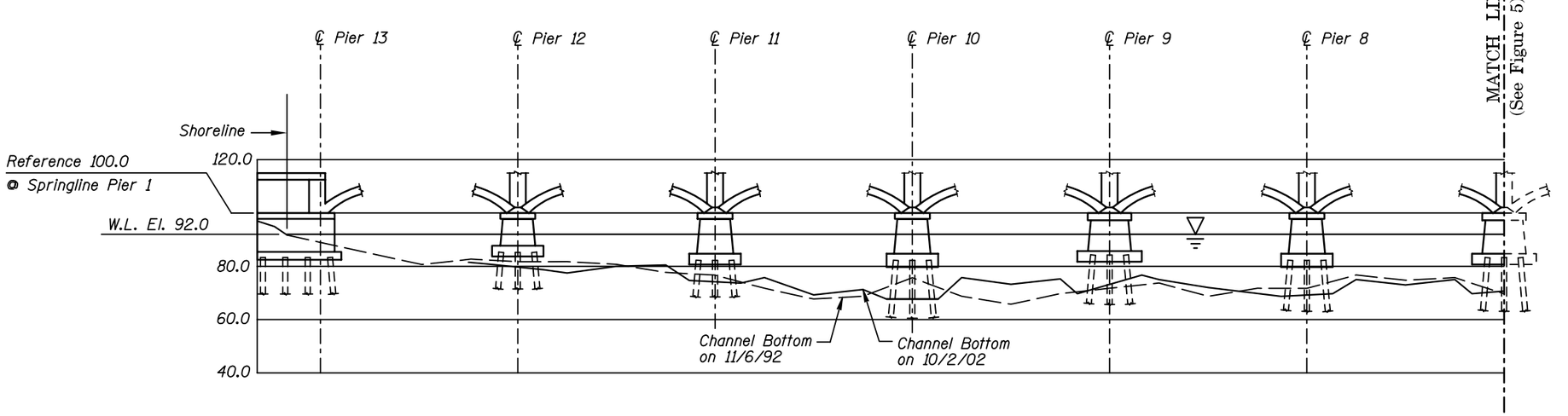
Code: 35120150		Figure No.: 3



UPSTREAM FASCIA PROFILE

Vertical Scale: 1" = 50'-0"



DOWNSTREAM FASCIA PROFILE

Vertical Scale: 1" = 50'-0"

Note:

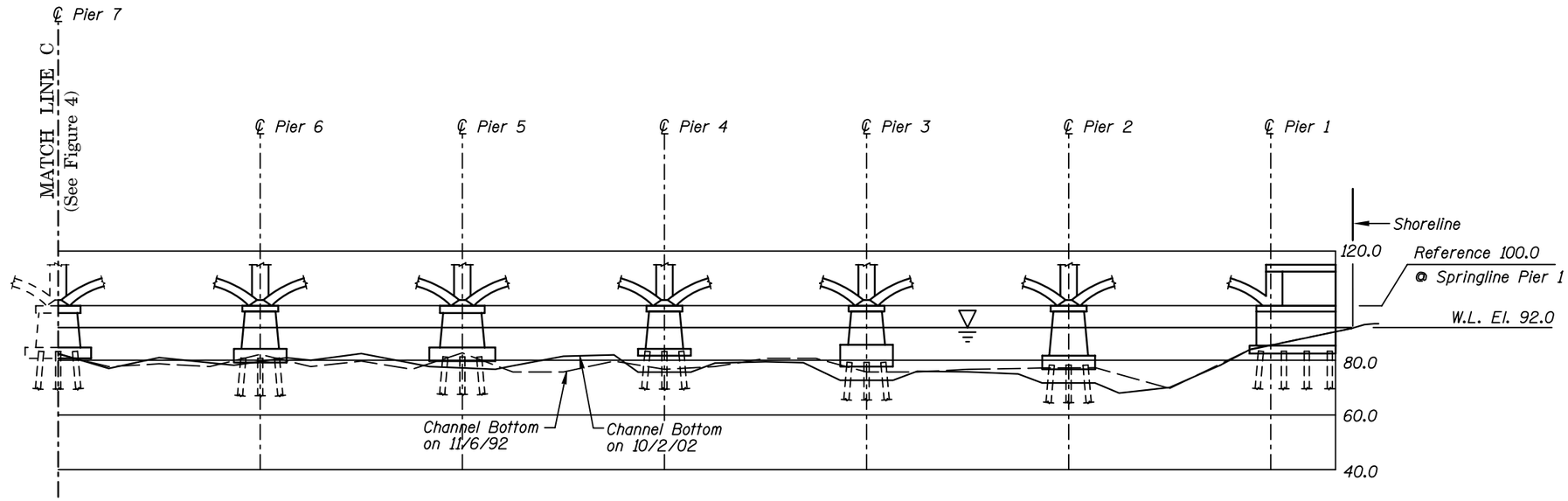
Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 4260
OVER THE NORTH CHANNEL OF THE MISSISSIPPI RIVER
DISTRICT 6, WINONA COUNTY

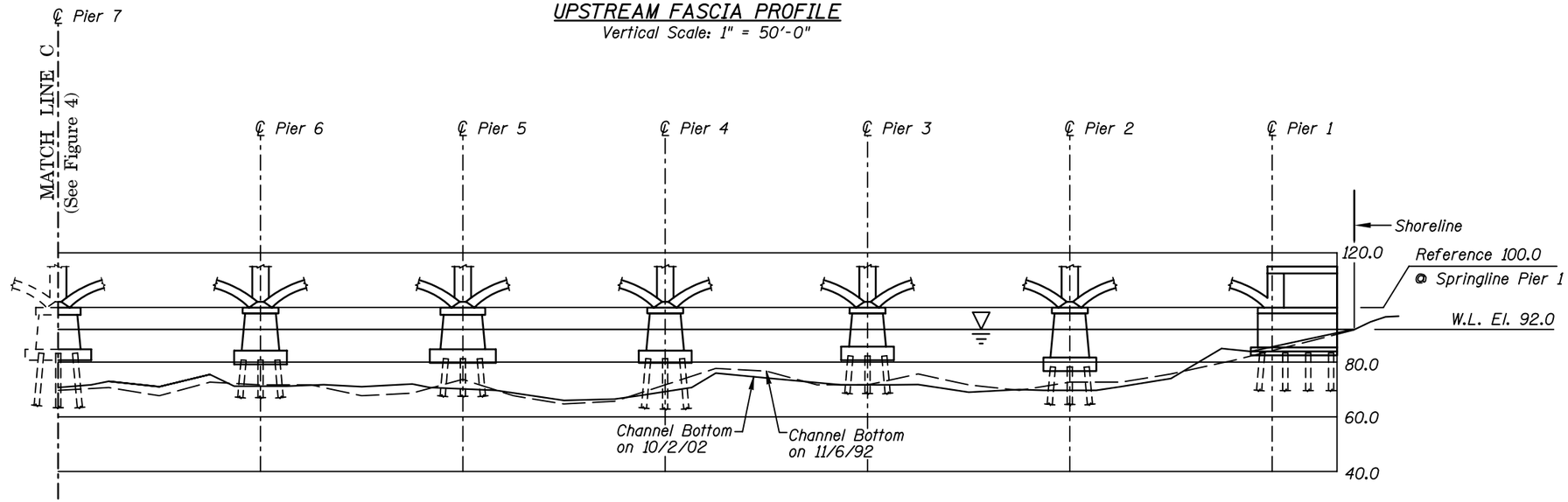
UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120150		Figure No.: 4



UPSTREAM FASCIA PROFILE

Vertical Scale: 1" = 50'-0"



DOWNSTREAM FASCIA PROFILE

Vertical Scale: 1" = 50'-0"

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. 4260
OVER THE NORTH CHANNEL OF THE MISSISSIPPI RIVER
DISTRICT 6, WINONA COUNTY

UPSTREAM AND DOWNSTREAM FASCIA PROFILES

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Photograph 1. Overall View of the Structure, Looking North.

Photograph 2. View of Pier 1, Looking Southeast.

Photograph 3. View of Pier 2, Looking Southwest. Note Heavy Scaling at Waterline.

Photograph 4. View of Pier 3, Looking Southeast.

Photograph 5. View of Pier 4, Looking Southeast.

Photograph 6. View of Pier 5, Looking Southeast.

Photograph 7. View of Pier 6, Looking Southwest.

Photograph 8. View of Pier 7, Looking Northeast.

Photograph 9. View of Pier 8, Looking Northeast.

Photograph 10. View of Pier 9, Looking West.

Photograph 11. View of Pier 10, Looking Northeast.

Photograph 12. View of Pier 11, Looking West.

Photograph 13. View of Pier 12, Looking West.

Photograph 14. View of Pier 13, Looking West.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 2, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: 4260 WEATHER: Rain, "45EF
WATERWAY CROSSED: The North Channel of the Mississippi River
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER
PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins
EQUIPMENT: Scuba, Scraper, Sounding Pole, Probe Rod, Camera, Boat, Fathometer
TIME IN WATER: 3:00 P.M.
TIME OUT OF WATER: 6:45 P.M.
WATERWAY DATA: VELOCITY " 1.5 f.p.s.
VISIBILITY " 1 foot
DEPTH 24 feet maximum at Pier 10
ELEMENTS INSPECTED: Piers 1 through 12
REMARKS: Overall, Piers 1 through 12 were found to be in fair to poor condition. The submerged concrete was typically in fair condition with moderate scaling near the waterline and random hairline cracks; however, there were several areas of heavy scaling and large areas of section loss also observed. All of the piers exhibited excessive undermining which has greatly reduced the load carrying capacity of the bridge, as well as compromised the structure's stability. Although there was substantial undermining of the piers noted during the previous inspection in 1992, the channel bottom has further degraded by as much as 4 feet at several of the piers. The exposed timber piling has also developed significant deterioration since the previous inspection with up to 50 percent section loss observed for some of the piles at several of the piers. At the time of the inspection, the structure was closed to traffic, but it was understood that design has begun for the rehabilitation of the bridge.

FURTHER ACTION NEEDED: ___X___ YES _____ NO

FURTHER ACTION NEEDED: (CONTINUED)

The extent of undermining was excessive, and the load carrying capacity has been considerably compromised. To restore the bridge to its original integrity appropriately designed foundation repairs that provide additional vertical support for the piers are warranted.

Repair the areas of concrete section loss by removing the unsound concrete and reforming with a concrete mix designed to promote high durability and low permeability.

So long as the bridge remains closed and repairs are implemented before it is re-opened, future underwater inspections should be performed at the normal maximum (NBIS) interval of 5 years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 4260
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The North Channel of the Mississippi River

INSPECTION DATE October 2, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	5.0’	N	6	7	7	N	6	7	6	6	N	6	6	N	N	N	N	N
	Pier 2	23.8’	4	5	6	7	N	4	3	N	N	N	3	5	N	4	5	N	N
	Pier 3	21.5’	5	6	6	7	N	5	3	N	N	7	3	6	N	5	6	N	N
	Pier 4	23.0’	4	6	5	7	N	4	3	N	N	N	3	5	N	4	5	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, Piers 1 through 12 were found to be in fair to poor condition. The submerged concrete was typically in fair condition with moderate scaling near the waterline and random hairline cracks; however, there were several areas of heavy scaling and large areas of section loss also observed. All of the piers exhibited excessive undermining which has greatly reduced the load carrying capacity of the bridge, as well as compromised the structure’s stability. Although there was substantial undermining of the piers noted during the previous inspection in 1992, the channel bottom has further degraded by as much as 4 feet at several of the piers. The exposed timber piling has also developed significant deterioration since the previous inspection with up to 50 percent section loss observed for some of the piles at several of the piers. At the time of the inspection, the structure was closed to traffic, but it was understood that design has begun for the rehabilitation of the bridge.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 4260
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The North Channel of the Mississippi River

INSPECTION DATE October 2, 2002

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CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 5	21.5’	5	6	5	7	N	5	3	N	N	N	3	5	N	5	6	N	N
	Pier 6	20.5’	5	6	6	7	N	5	3	N	N	7	3	6	N	5	6	N	N
	Pier 7	21.0’	5	6	6	7	N	5	3	N	N	N	3	6	N	5	6	N	N
	Pier 8	22.5’	4	6	6	7	N	4	3	N	N	7	3	6	N	4	5	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, Piers 1 through 12 were found to be in fair to poor condition. The submerged concrete was typically in fair condition with moderate scaling near the waterline and random hairline cracks; however, there were several areas of heavy scaling and large areas of section loss also observed. All of the piers exhibited excessive undermining which has greatly reduced the load carrying capacity of the bridge, as well as compromised the structure’s stability. Although there was substantial undermining of the piers noted during the previous inspection in 1992, the channel bottom has further degraded by as much as 4 feet at several of the piers. The exposed timber piling has also developed significant deterioration since the previous inspection with up to 50 percent section loss observed for some of the piles at several of the piers. At the time of the inspection, the structure was closed to traffic, but it was understood that design has begun for the rehabilitation of the bridge.

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USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 4260
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The North Channel of the Mississippi River

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CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 9	18.5’	4	5	6	7	N	4	3	N	N	7	3	5	N	4	5	N	N
	Pier 10	24.0’	4	6	5	7	N	4	3	N	N	7	3	5	N	4	5	N	N
	Pier 11	17.5’	5	6	6	7	N	5	3	N	N	7	3	6	N	5	6	N	N
	Pier 12	12.0’	5	6	6	7	N	5	3	N	N	N	3	6	N	5	6	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, Piers 1 through 12 were found to be in fair to poor condition. The submerged concrete was typically in fair condition with moderate scaling near the waterline and random hairline cracks; however, there were several areas of heavy scaling and large areas of section loss also observed. All of the piers exhibited excessive undermining which has greatly reduced the load carrying capacity of the bridge, as well as compromised the structure’s stability. Although there was substantial undermining of the piers noted during the previous inspection in 1992, the channel bottom has further degraded by as much as 4 feet at several of the piers. The exposed timber piling has also developed significant deterioration since the previous inspection with up to 50 percent section loss observed for some of the piles at several of the piers. At the time of the inspection, the structure was closed to traffic, but it was understood that design has begun for the rehabilitation of the bridge.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.